Amendment To Claims

1. (Previously Presented) A nucleic acid sequence comprising:

P_x-S_x-B_n-(ZR)-Hir(As_mR)-protein(Y)-T

where

P_x is a promoter sequence;

S_x is a nucleic acid encoding a signal sequence or leader sequence;

B_n is 1-15 codons, when n is an integer from 1 to 15, or a chemical bond, when n=0;

Z is a codon for lysine or arginine;

R is an arginine codon or a chemical bond;

Hir is a nucleic acid sequence coding for hirudin or a hirudin derivative which is at least about 80% homologous thereto;

As_m is a chemical bond, when m=0, or 1-10 codons, when m is an integer from 1 to 10;

protein(Y) is a nucleic acid sequence encoding mini-proinsulin or a derivative thereof which is at least about 90% homologous thereto; and

T is an untranslated expression-enhancing nucleic acid sequence.

Claims 2 to 6 (Cancelled)

7. (Original) A multicopy vector comprising the nucleic acid of claim 1.

8. (Original) A plasmid comprising the nucleic acid of claim 1.

9. (Original) A host cell comprising the nucleic acid of claim 1, as part of the host cell chromosome, as part of a mini-chromosome, or extra-chromosomally.

10. (Original) The host cell of claim 9, wherein the host cell is a yeast.

11. (Original) The host cell of claim 10, wherein the yeast is selected from *Saccharomyces cerevisiae*, *Kluyveromyces lactis*, *Hansenula polymorpha*, and *Pichia pastoris*.

12. (Original) A host cell comprising the multicopy vector of claim 7.

13. (Original) A host cell comprising the plasmid of claim 8.

14. (Previously Presented) A process of fermentative production of fusion protein comprising expressing the nucleic acid of the host cell of claim 9 to form the fusion protein in a fermentation supernatant of a cell culture.

Claims 15 to 20 (Cancelled)

21. (Previously Presented) The process of claim 14 comprising further the step of isolating said fusion protein from said fermentation supernatant.

22. (Previously Presented) The process of Claim 21 wherein said step of isolating the fusion protein comprises adjusting the pH of said fermentation supernatant to about 2.5 to 3.5 to precipitate non-desired proteins and form a precipitation supernatant and isolating the fusion protein from said precipitation supernatant.

23. (Previously Presented) The process of claim 14 further comprising the steps of: (A) separating the fermentation supernatant from the host cell; (B) culturing the host cell in fresh medium; (C) separating the resulting supernatant from the host cell; (D) repeating steps (B) and (C) several times; and (E) isolating the fusion protein from the aforementioned supernatants by adjusting the pH of said supernatants to about 2.5 to 3.5 to precipitate non-desired proteins and form a precipitation supernatant and isolating the fusion protein from said precipitation supernatant.

24. (Previously Presented) The process of claim 21, wherein the step of isolating the fusion protein comprises precipitating the fusion protein from the fermentation supernatant, and comprising the additional steps of releasing the protein encoded by protein(Y) from the fusion protein and concentrating said protein encoded by protein(Y) by microfiltration, hydrophobic interaction chromatography, ion exchange chromatography, or a combination of such procedures.

25. (Previously Presented) A process of fermentative production of fusion protein, comprising expressing the nucleic acid of the host cell of claim 12 to form the fusion protein in a supernatant of a cell culture.

26. (Previously Presented) The process of claim 25 comprising further the step of isolating the fusion protein from the supernatant of the cell culture.

27. (Previously Presented) A process of fermentative production of fusion protein, comprising expressing the nucleic acid of the host cell of claim 13 to form the fusion protein in a supernatant of a cell culture.

28. (Previously Presented) The process of claim 27 comprising further the step of isolating the fusion protein from the supernatant of the cell culture.

29. (Cancelled)

30. (Previously Presented) A process of claim 21 further comprising the step of releasing insulin by treating said fusion protein with trypsin and carboxypeptidase B.

31. (Previously Presented) A nucleic acid sequence of claim 2 in which (As_mR), taken together, is an arginine codon.

32. (Currently Amended) A nucleic acid sequence of claim 2 in which (As_mR), taken together, encodes SEQ ID NO:12 (Gly-Asn-Ser-Ala-Arg).

33. (Currently Amended) A nucleic acid sequence of claim 2 in which P_x is a yeast ADH2 promoter, S_x is an α factor leader sequence, Hir encodes hirudin or lepirudin, (As_mR), taken together, is either an arginine codon or encodes SEQ ID NO:12 (Gly-Asn-Ser-Ala-Arg), and T is the 3' segment of the sequence coding for bovine interleukin 2 which remains after cleavage thereof with NcoI restriction enzyme.

34. (Previously Presented) A nucleic acid sequence of Claim 33 wherein protein(Y) is mini-proinsulin.

35. (Previously Presented) A nucleic acid of Claim 34 wherein Hir is lepirudin which has been prepared recombinantly.